

MAR 23 1993



March 18, 1993

Mr. E. Matt Germon
Environmental Engineer
Vermont Department of
Environmental Conservation
103 South Main Street
Waterbury, Vermont 05676

RE: Belmont General Store - Mt. Holly, Vermont - VDEC Site #92-1276

Dear Mr. Germon:

Lincoln Applied Geology, Inc. (LAG) has completed the preliminary well sampling and water supply survey requested by the Vermont Department of Environmental Conservation (VDEC) for the Belmont General Store (BGS) in Mount Holly, Vermont. This letter report represents completion of the three tasks delineated in our January 8, 1993 work plan that you approved on January 14, 1993.

The site is shown on the General Location Map presented as **Figure 1**. A site visit was performed on February 1, 1993. At that time ground water monitoring well MW-1 was located immediately north of the gasoline underground storage tank (UST). Some concrete had to be chiseled off the well box to gain access to the well. No other work or repairs to MW-1 were deemed necessary. MW-1 was then monitored with a photoionization detector (PID) and the depth to ground water and bottom of the well was determined. A PID survey of the interior of the BGS and the basement area was conducted, and the private water supply sources in the area were identified through individual interviews and/or visual observation.

The BGS building is shown on the Detailed Site Map presented as **Figure 2**. The building contains the BGS on the north side and the U.S. Post Office for the Village of Belmont on the south side. The southern half of the building has a full basement that is used for storage of BGS supplies. A 275 gallon above ground fuel oil tank and fuel oil furnace for heating the building, and a concrete cistern for the storage of potable water from the upgradient spring water source are also located in the basement. The northern half of the building has a slab floor with no basement. A vapor survey of the basement revealed no volatile organic compounds at levels greater than 0.1 parts per million (ppm) PID.

In front of the building's northeast corner (along Belmont Road) is a new double-wall steel gasoline 2,000 gallon UST and above ground gasoline pump. This tank replaces two former single wall steel gasoline USTs that were excavated and removed by James H. Shippee on July 27, 1992. At that time gasoline contamination

Mr. E. Matt Germon
Page 2
March 18, 1993

was found to have originated from a piping leak beneath the pump. A 550 gallon above ground single wall steel kerosene tank is situated outside the southeast corner of the building. It replaced an underground 550 gallon kerosene LUST.

During excavation of the USTs, approximately 83 cubic yards of petroleum contaminated soils (PCS) was excavated and trucked to a nearby gravel pit where it was stockpiled and polyencapsulated. About 76 cubic yards are gasoline contaminated, and about 7 cubic yards are kerosene contaminated. A 2-inch PVC ground water monitoring well (MW-1) was installed in the former gasoline tank pit. The location of the PCS is shown on **Figure 1**, and MW-1 is shown on **Figure 2**. During the site visit on February 1, 1993 the PCS were not evaluated due to the heavy snow cover and frozen disposition of the soils. A full vapor evaluation of the soils will be performed with the PID after they have thawed.

On February 1, 1993 the depth to ground water in MW-1 was 3.87 feet below the top of casing (TOC), and the bottom of the well was 8.14 feet below TOC. The vapor headspace of MW-1 upon opening the well was background (0 ppm). Following appropriate purging, a sample of ground water was collected from MW-1, preserved and analyzed at the Endyne, Inc. laboratory for the gasoline constituents benzene, toluene, ethylbenzene, and xylenes (BTEX), and the additive MTBE. The laboratory report is presented as **Attachment A** and indicates that 6.1 parts per billion (ppb) of MTBE was present in ground water from MW-1, and no detectable levels (<4 ppb) of BTEX were present. There were also no unidentified peaks present in the chromatogram. The data suggests that the vast majority of gasoline contamination in the vicinity of MW-1 was removed by soils excavation during the UST removal.

Based on these results and our interpretative assessment it appears that the only contamination impacts associated with the UST removal at this time are the shallow ground water system which is believed to discharge into the nearby stream which flows from Star Lake.

Utilizing available orthophotography, topographical maps, on-site observations, and our computerized imaging techniques, a regional site map has been created and is presented as **Figure 3**. The surrounding property owners, tenants, and the corresponding water supply sources are also shown on **Figure 3**. Many homes in the area receive potable water from springs located upgradient to the east and southeast of the BGS. Spring water is supplied to homes via underground piping. Some of the homes have drilled wells. A review of well logs at the State of Vermont Division of Water Supply showed only two drilled wells in the vicinity of the BGS (the Devereux and Kubic properties). Both wells have yields of 20 gallons per minute



Lincoln Applied Geology, Inc.
Environmental Consultants

RD # 1 Box 710 • Bristol, Vermont 05443 • (802) 453-4384 • FAX (802) 453-5399

Mr. E. Matt Germon

Page 3

March 18, 1993

(gpm). They were drilled to depths of 225 feet and 165 feet with bedrock encountered at 48 feet and 60 feet, respectively.

Although ground water in the source area (MW-1) contained no detectable levels of BTEX and only 6.1 ppb MTBE, no monitoring wells are located in a downgradient position. We propose to install two ground water monitoring wells downgradient of the former USTs on the east side of the stream after the ground has thawed. Due to the shallow depth to ground water and the sand and clay soil types, it may be possible to install the two 2-inch diameter PVC wells using hand augering techniques. The new wells and MW-1 will be properly developed, purged, and sampled. A location and elevation survey of the wells and TOCs will also be conducted to allow the development of a ground water contour map showing the direction of ground water flow on-site. Springs and seeps immediately downgradient of the UST will be sampled, if found. At the same time, drinking water samples will be collected from the Graves, Potter, and Whyte homes which are all served by a single spring with underground piping. Since the integrity of the underground piping is of concern regarding possible contamination impacts, sampling should resolve this issue. The drilled wells at the Pite, Desautel, and Jane Hill homes closest to the BGS will also be sampled. All water samples will be analyzed for BTEX and MTBE.

A summary report with conclusions and recommendations will be submitted to the VDEC following receipt of the laboratory results. Enclosed as **Attachment B** is a cost proposal for the well installation, survey, monitoring, and sampling.

Please review the cost proposal and contact me with your questions, comments, and/or approval.

Sincerely,



William D. Norland
Hydrogeologist

WDN/smd

Enclosures

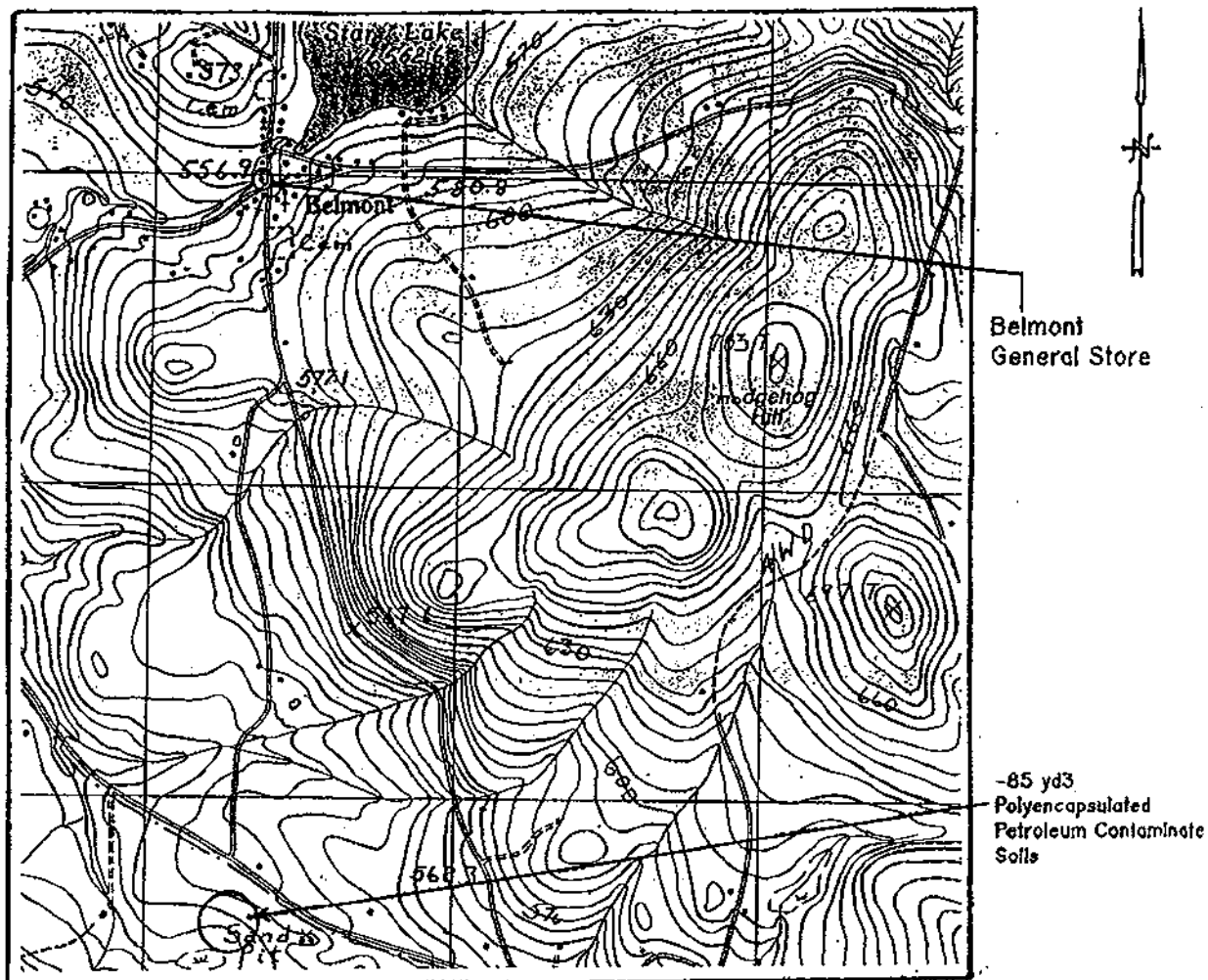
cc: Mr. and Mrs. John Graves



Lincoln Applied Geology, Inc.
Environmental Consultants

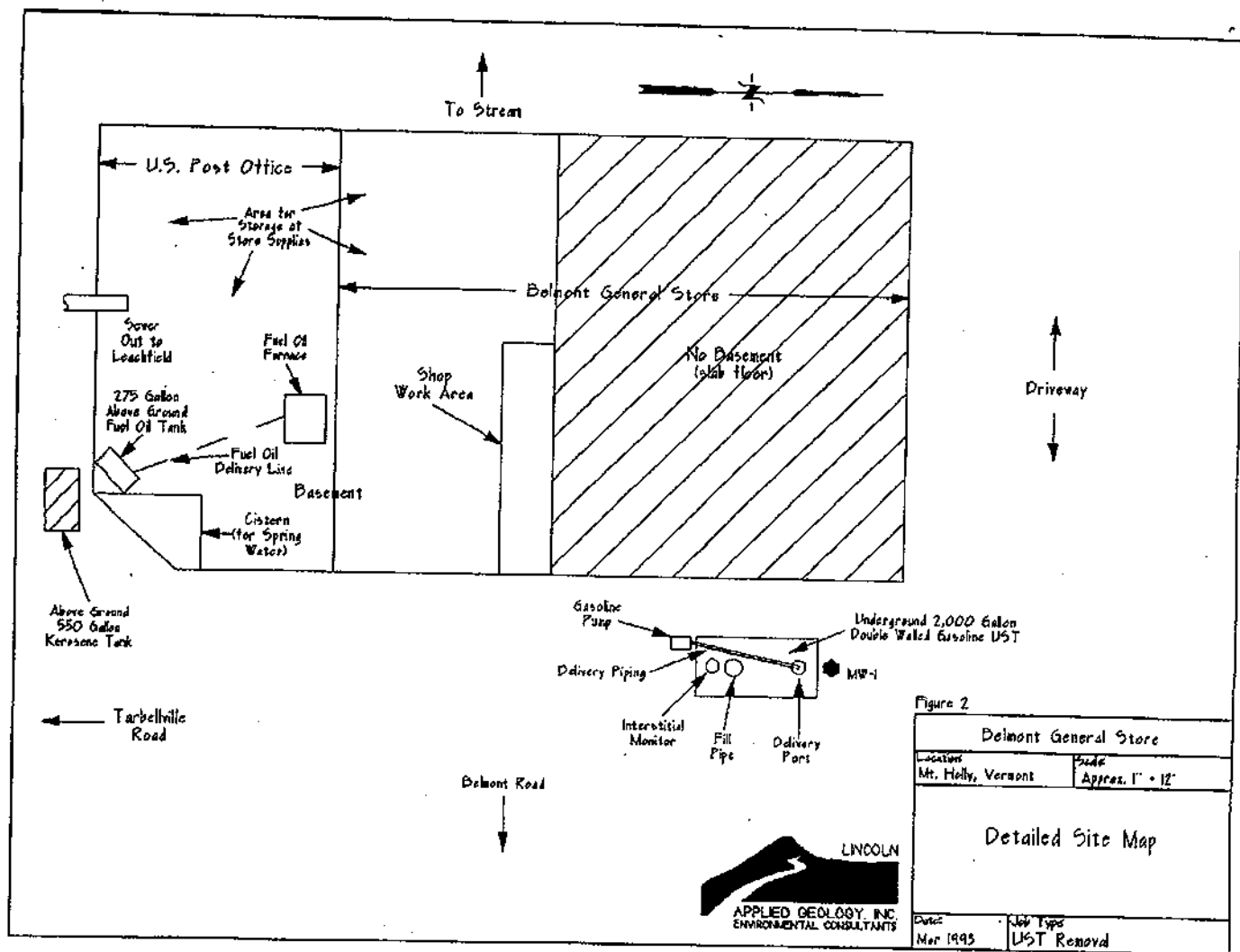
RD # 1 Box 710 • Bristol, Vermont 05443 • (802) 453-4384 • FAX (802) 453-5399

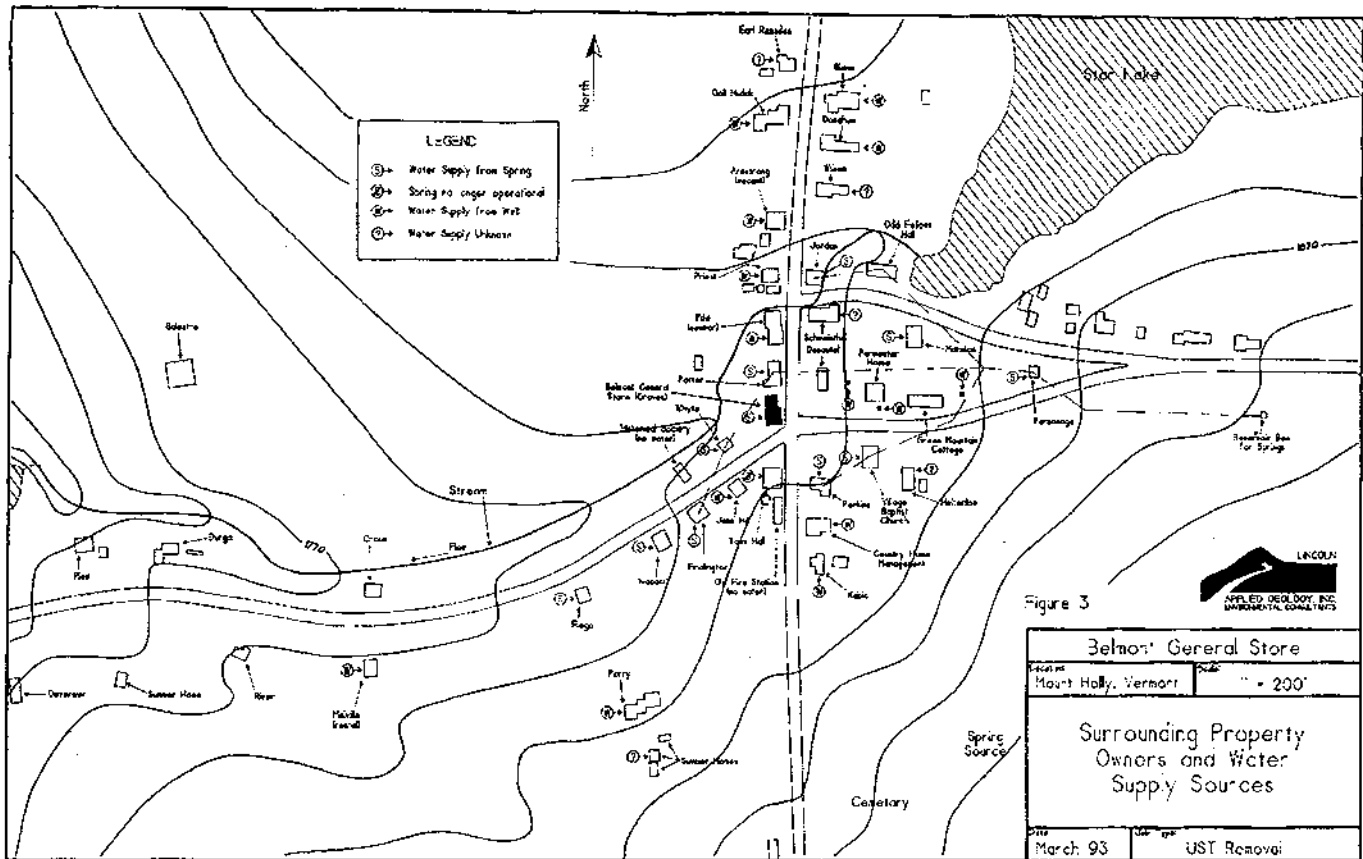
Belmont General Store GENERAL LOCATION MAP



Source: U.S.G.S. 7.5 min.
Topo Series
Mount Holly, VT Quad

Scale: 1" = 2000'





ATTACHMENT A

Laboratory Report



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Lincoln Applied Geology
PROJECT NAME: Belmont Gen. Store
REPORT DATE: February 16, 1993
DATE SAMPLED: February 1, 1993

PROJECT CODE: LABG1948
REF.#: 41,893

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody.

Chain of custody indicated samples were preserved with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method.

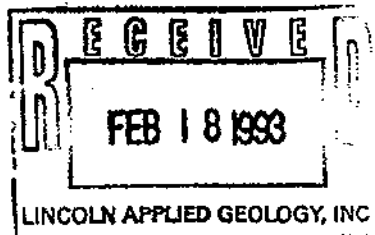
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures





ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

GC METHOD--BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Belmont Gen. Store
REPORT DATE: February 16, 1993
DATE SAMPLED: February 1, 1993
DATE RECEIVED: February 2, 1993
ANALYSIS DATE: February 15, 1993

PROJECT CODE: LABG1948
REF.#: 41,893
STATION: MW-1
TIME SAMPLED: 12:45
SAMPLER: B. Norland

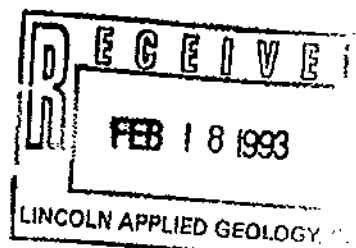
<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	1	ND
MTBE	5	6.1

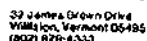
Bromobenzene Surrogate Recovery: 102%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected





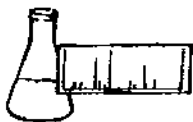
002761

Requested Analyses											
1	pH	6	TKN	11	Total Solids	16	Metals ICPIAA	21	EPA 621	26	EPA 820
2	Chloride	7	Total P	12	TSS	17	Fecal and/or Tot.	22	EPA 625 HN or A	27	EPA 8010
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 415.1	28	EPA 8020
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX + MTBE	24	EPA 606 PAU/PCB	29	EPA 8060
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 610/612	25	EPA 8340	30	EPTOX
31	TCLP (Specify: organics, semi-volatility, metals, pesticides, herbicides)										
32	Other (Specify):										

LABORATORY: WHITE

PROJECT MANAGER: YELLOW

SAMPLER: PINK



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Lincoln Applied Geology
PROJECT NAME: Belmont
REPORT DATE: February 16, 1993
DATE SAMPLED: February 1, 1993

PROJECT CODE: LABG1010
REF.#: 42,157

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody.

Chain of custody indicated samples were preserved with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times.

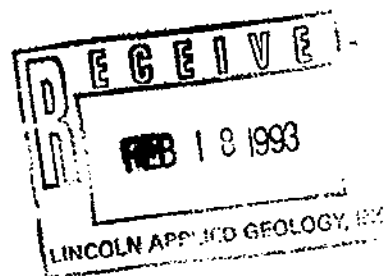
All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director



enclosures



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

GC METHOD--BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Belmont
REPORT DATE: February 16, 1993
DATE SAMPLED: February 1, 1993
DATE RECEIVED: February 9, 1993
ANALYSIS DATE: February 15, 1993

PROJECT CODE: LABG1010
REF.#: 42,157
STATION: Trip Blank
TIME SAMPLED: 9:00
SAMPLER: B. Norland

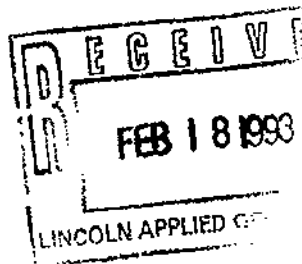
<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	1	ND
MTBE	5	ND

Bromobenzene Surrogate Recovery: 111%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected



007789

SAMPLER: PINK

ATTACHMENT B

Cost Proposal

ATTACHMENT B

Costs for Installation of Two Monitoring Wells, Sample Collection, Monitoring Round, and Summary Report

I. Install Wells (Hand augering, soils description, develop wells)

Hydrogeologist - 10 hours @ \$45.00	\$450.00
Technician - 8 hours @ \$30.00	240.00
Technician (OT) - 2 hours @ \$45.00	90.00
Mileage - 150 miles @ \$0.30	45.00
Generator - \$35.00/day	35.00
Peristaltic Pump - \$75.00/day	75.00
PID - \$75.00/day	75.00
Interface Probe - \$25.00/day	25.00
2 Flush-mounted well boxes - \$42.69/each	85.38
2 10' monitoring wells - \$29.92/each	<u>59.84</u>
Total I	\$1,180.22

II. Ground Water and Water Supply Sampling and Soils Evaluation

Technician - 8 hours @ \$30.00	\$240.00
Technician (OT) - 2 hours @ \$45.00	90.00
Mileage (includes laboratory) - 225 miles @ \$0.30	67.50
Generator - \$35.00/day	35.00
Peristaltic Pump - \$75.00/day	75.00
PID - \$75.00/day	75.00
Interface Probe - \$25.00/day	25.00
12 samples for BTEX & MTBE analysis - \$62.00/each (3 springs: Graves, Potter, Whyte; 3 wells: Pite, Desautel, Jane Hill; 3 monitor wells: MW-1, 2, 3; 2 stream samples; 1 trip blank)	744.00
Sampling gloves - 24 @ \$0.10/each	2.40
3 Disposable bailers @ \$6.70/each	<u>20.10</u>
Total II	\$1,374.00

III. Summary Report

Senior Hydrogeologist - 1 hour @ \$75.00	\$75.00
Hydrogeologist - 8 hours @ \$45.00	360.00
Administrative Assistant - 5 hours @ \$30.00	150.00
Computer Technician - 4 hours @ \$30.00	<u>120.00</u>
Total III	\$705.00

TOTAL I, II, and III \$3,259.22